



the weekly anthropocene



dispatches from the wild, weird world of humanity and its biosphere
by Sam Matey

USA, Part 1: National Monuments. On December 4th, Trump announced that he was shrinking two Utah national monuments, Bears Ears (pictured) and Grand Staircase-Escalante. The monuments will lose a combined 2 million acres, shrinking by 85 and 46 percent respectively. This is the largest reduction in protected land in American history, and opens territory rich in wildlife, ancient Native American archaeological sites, and dinosaur fossils to development. This is a truly horrible action, and the Trump Administration may not be done yet. On the 5th, Interior Secretary Ryan Zinke released a



report urging reductions in four more national monuments and allowing more destructive uses such as logging in six more, including Katahdin Woods and Waters National Monument in Maine. This is an unprecedented act of theft from the American people.

However, American people are not giving up without a fight. On the same day President Trump announced his reprehensible plan, two major lawsuits were filed: one from a coalition of 10 conservation groups and one from an alliance of five Native American tribes. Yvon Chouinard, the billionaire founder of Patagonia and an ardent environmentalist, told Patagonia that he also plans to sue to protect America's public lands. We are currently in a historic fight to protect America's wild places from a government that would tear them apart. More news as it develops.

USA, Part 2: The Tax Bill. As most readers probably know by know, the Republican-dominated US Senate recently passed a sweeping 1.4 trillion dollar tax bill. In addition to its sweeping impacts on the federal deficit, income inequality, spending on government services, and the individual healthcare mandate, it also includes a provision that opens the coastal plain region of the Arctic National Wildlife Refuge (ANWR) to oil drilling. The provision, inserted to win the vote of Alaska Senator Lisa Murkowski, would threaten an area that is home to wolves, caribou,



Arctic foxes, snowy owls, musk oxen (pictured), and 36 species of fish. ANWR is also the largest wildlife refuge in America, and the only one that is home to all three major North American bear species: polar bears, black bears, and grizzly bears. ANWR is a special place, and should never be devastated to make way for fossil fuel extraction. The fight is not over yet: the Senate tax bill has yet to be reconciled with the House version, and this provision could be cut along the way. Furthermore, opening the lands to drilling does not guarantee that companies will choose to drill there: establishing new drilling sites in the Arctic is an expensive, controversial, and slow process. It is to be hoped that Americans will have elected a saner government before any projects to drill in ANWR can begin.



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USA, Part 3: The Ivory Ban. Recently, American President Donald Trump announced that he would suspend the preexisting American ban on importing elephant trophies, potentially rolling back years of progress in containing the bloody and dangerous ivory trade. This action would have allowed his big-game hunting sons, Eric and Don Jr., to bring their trophies back to the US. Fortunately, the backlash to lifting the ban was so intense that the president tweeted that he was putting the suspension on hold, saying he needed more information. It appears that the ban is still in place, for now.

USA, Part 4: Wind Power in Texas. In a rare piece of good news from the United States, wind power has overtaken coal as the second-largest source of electricity capacity in Texas, trailing only natural gas. As wind gets cheaper and coal plants close down, renewable energy will only grow further.

USA: Summary. The Trump Administration is the most anti-science, anti-environment and anti-public lands government in American history. For the rest of the Trump Presidency, those who care about the natural world will be fighting a desperate rearguard action, in the courts and on the ground, to stop this destructive agenda. However, all is not lost. As Rice University professor Daniel Cohan said, “Trump can't repeal the laws of economics.” Renewable energy is getting cheaper, fossil fuel extraction is getting less cost-effective, and Americans are fighting back. More news as it develops.

Arctic Ocean. In a landmark pact, nine nations and the EU have agreed to place the international waters of the Central Arctic Ocean off limits to fishing for at least 16 years. This group includes all nations bordering the Arctic Ocean as well as fishing powerhouses China, Japan, and South Korea. The US was able to join as President Obama had already signed an earlier version of the deal in 2015. It's also legally binding, so Trump will not be able to pull out as he did with Paris Agreement.

For most of human history, it has been impossible to fish in the CAO anyway, due to it being covered in ice. Recently, though, climate change has opened it up, with up to 40% of the CAO being open water in the last few summers. The pact's signatories also agreed to work together on researching the region's ecosystems (the CAO is home to Arctic cod, seals, and polar bears, among others) and how they are responding to the pressures of climate change

This is spectacular news, showing a respect for science and concern for the environment that is all too rare in the world right now. May the CAO be disturbed by no more than researchers for years to come.



Vietnam. Nguyen Van Hoa, a 22-year old journalist and blogger, has been sentenced to 7 years in prison for writing about a major chemical spill that took place in 2016. Formosa Chemicals illegally discharged chemical waste into the ocean, ravaging the local ecosystem and wiping out thousands of local fishers' livelihoods. In a closed trial, Hoa was found guilty of “spreading propaganda against the Socialist Republic of Vietnam.” Fighting for the environment is still a risky business.



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Yukon Territory, Canada. In a landmark win for wildlife conservation, Canada's Supreme Court has ruled that the Peel Watershed, an area of wilderness about the size of Ireland, will be administered under a First Nations-led land plan that will protect 80% of it from development. In 2014, the Yukon territorial government rejected that plan in favor of one that would open 71% of it up to development. They have been stopped. Great news! (And thanks to Round River Conservation Studies and CBC for the map!).



Massachusetts Institute of Technology (MIT). Two MIT researchers, postdoc Xiao-Yu Wu and engineering professor Ahmed Ghoniem, have invented a new system that turns carbon dioxide (CO₂) emissions into fuel. They created a lanthanum-calcium-iron oxide membrane that is highly selective for oxygen: when hit with a stream of carbon dioxide, it separates one of the oxygens in the molecule, leaving carbon monoxide (CO) behind. CO can be used as a fuel in its own right, or be combined with hydrogen to make syngas, a common industrial fuel. The major input in the process is heat, which could come from renewable energy or waste heat from a power plant. This method allows a fossil fuel to essentially be burned twice for the same amount of input: once with the original input, and twice with the syngas formed from its emissions. Although this technique is now firmly in the laboratory stage, by the late 2020s or 2030s it could become a major new way to provide fuel while greatly reducing greenhouse gas emissions. Science rocks. Check out the full article at goo.gl/tc6zQD.

Cameroon. The Nigeria-Cameroon chimpanzee (*Pan troglodytes elliotti*) is the rarest and least studied subspecies of chimpanzee, with a probable population of less than 6,000. Only about 250 remain in Cameroon, divided into four groups. Sadly, it seems that there may now only be three: one of these groups has not been seen for over three years, since a new road opened their habitat to farmers, poachers, and loggers. Conservationist Martin Mikeš, head of a local NGO, speculates that they have either been killed or forced to migrate. May we learn from their fate and stop it from happening again.

Galapagos Islands, Ecuador. In an astonishing example of vertebrate evolution occurring before humanity's eyes, a new species of finch has evolved in the Galapagos Islands—in just two generations! A four-decade-long study of the island of Daphne Major allowed scientists to observe the entire process. In 1981, a strange bird landed on the island: a cactus finch (*Geospiza conirostris*) from an island 62 miles away., who had a much larger body and beak than any of the three finch species already on the island. This bird bred with a local medium ground finch (*Geospiza fortis*), creating a new hybrid informally dubbed the “Big Bird” lineage. The Big Birds were good at competing for food, but their song and beak shape were different from the other birds on the island, making them unattractive mates. So, they bred with themselves, fulfilling two major requirements for a species: that a population is reproductively isolated and ecologically competitive. This is an amazing discovery, and underlines the value of long-term research studies.